



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,894	08/13/2001	Shamim A. Alpha	27252.3	8150

7590

12/19/2003

Petar Kraguljac  
Benesch, friedlander, Coplan & Aronoff LLP  
2300 BP Tower  
200 Public Square  
Cleveland, OH 44114-2378

EXAMINER

LEWIS, CHERYL RENE A

ART UNIT

PAPER NUMBER

2177

DATE MAILED: 12/19/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/928,894

Applicant(s)

ALPHA ET AL.

Examiner

Cheryl Lewis

Art Unit

2177

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

Art Unit: 2177

### DETAILED ACTION

1. Claims 1-21 are presented for examination.

### DRAWINGS

2. The applicants formal drawings filed on August 13, 2001 have been approved by the draftsman.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

Art Unit: 2177

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 7, 10, 12, 16, 17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (Pat. No. 5,557,791, filed October 19, 1994, hereinafter Cheng) and Chaudhuri et al. (Pat. No. 6,169,983 B1, filed May 30, 1998, hereinafter Chaudhuri).

5. Regarding Claims 1, 10, and 16, Cheng teaches outer join operations using responsibility regions assigned to inner tables in a relational database.

The method and associated system for outer join operations using responsibility regions assigned to inner tables in a relational database as taught or suggested by Cheng includes:

identifying one or more unstructured data columns (Abstract, lines 5-18, col. 2, lines 55-64, col. 3, lines 55-60) and one or more structured data columns (col. 2, lines 36-42, col. 3, lines 27-30 and 60-65) from a database (Abstract, lines 1-3); generating a index of unstructured data columns (col. 6, lines 58-67, col. 7, lines 1-7) and structured data columns (col. 2, lines 36-42, col. 3, lines 27-30 and 60-65); providing associative access to the database using a query that includes unstructured conditions (col. 3, lines 52-67, col. 4, lines 1-15 and 30-50) and structured conditions (col. 2, lines 36-42, col. 3, lines 27-30 and 60-65).

However, Cheng does not expressly teach generating a combined index.

Chaudhuri teaches generating a combined index (Abstract, lines 1-8) and a user interface for receiving instructions from a user (col. 4, lines 65-67, col. 5, lines 1-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of Cheng with Chaudhuri's method of a combined index because Chaudhuri's method enables an index merge tool helps form, for use by database server in accessing a database in accordance with a workload of queries, an index configuration or set of indexes that consumes relatively less storage space, the index merge tool identifies from an initial set of indexes one or more combinations of two or more indexes on the same table of the database and merges each identified combination of indexes to form a merged set of indexes (Abstract, lines 1-8).

6. Regarding Claims 7 and 17, Cheng teaches the unstructured data column includes text (col. 4, lines 35-44).

7. Regarding Claim 12, Chaudhuri teaches rows having text data including one or more words (col. 5, lines 48-53).

8. Regarding Claim 21, Cheng teaches the means which essentially comprise the same means as the structured data is an unstructured data converted to a structured form (col. 3, lines 25-67).

9. Claims 2, 3, 4, 6, 11, 13, 14, 18, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (Pat. No. 5,557,791, filed October 19, 1994, hereinafter Cheng) and Chaudhuri et al. (Pat. No. 6,169,983 B1, filed May 30, 1998,

Art Unit: 2177

hereinafter Chaudhuri) as applied to claims 1, 10, and 16 above, and further in view of Whang et al. (Pat. No. 6,349,308 B1, filed February 19, 1999, hereinafter Whang).

10. Regarding Claims 2 and 18, Cheng and Chaudhuri do not expressly teach an inverted index.

However, Whang teaches an inverted index (Abstract, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the methods of Cheng and Chaudhuri with Whang's method of an inverted index because Whang's method enables an inverted index, an inverted index is an index used for information retrieval (IR), i.e. for retrieving documents containing the keywords given by a user, the inverted index maintains a list of postings for each keyword extracted from the documents, insertion, deletion, and modification of documents entail dynamic update of the inverted index, thus the inverted index needs a storage structure for effectively managing the posting lists, which is of variable size (col. 3, lines 23-28).

11. Regarding Claims 3 and 13, Whang teaches tokens where the inverted index table is generated based on the tokens (col. 3, lines 22-37, col. 6, lines 32-61).

12. Regarding Claims 4, 11, 14, 19, and 20, Whang teaches a B-tree from the inverted index table to form the combined index (col. 4, lines 61-67), where a first level of branching is based on the tokens (col. 4, lines 61-67, col. 5, lines 18-47) and a second level of branching is based on values (col. 4, lines 61-67, col. 5, lines 18-47).

13. Regarding Claim 6, Whang teaches the means which essentially comprise the same means as adding to the inverted index (col. 3, lines 22-38).

Art Unit: 2177

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (Pat. No. 5,557,791, filed October 19, 1994, hereinafter Cheng); Chaudhuri et al. (Pat. No. 6,169,983 B1, filed May 30, 1998, hereinafter Chaudhuri); and Whang et al. (Pat. No. 6,349,308 B1, filed February 19, 1999, hereinafter Whang) as applied to claims 1 and 2 above, and further in view of Beavin et al. (Pat. No. 6,272,488 B1, filed March 26, 1999, hereinafter Beavin).

15. Regarding Claim 5, Cheng, Chaudhuri, and Whang do not expressly teach parsing text.

Beavin teaches parsing text (col. 15, lines 30-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the methods of Cheng, Chaudhuri, and Whang with the method of Beavin because Beavin's method enables collecting multi-column statistics by database management system to reflect a relationship among multiple columns of a table in a relational database, these statistics are stored in the system catalog, and are used during query optimization to obtain an estimate of the number of qualifying rows when a query has predicates on multiple columns of a table.

16. Claims 8, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (Pat. No. 5,557,791, filed October 19, 1994, hereinafter Cheng) and Chaudhuri et al. (Pat. No. 6,169,983 B1, filed May 30, 1998, hereinafter Chaudhuri) as applied to claims 10 and 1 above, and further in view of Nelson et al. (Pat. No. 6,243,713 B1, filed August 24, 1998, hereinafter Nelson).

Art Unit: 2177

17. Regarding Claims 8 and 15, Cheng and Chaudhuri do not expressly teach unstructured data includes data being one of image data, video data, and audio data.

Nelson teaches unstructured data includes being one of image data, video data, and audio data (Abstract, lines 1-7, col. 6, lines 35-39, figure 2, element 100,

'Multimedia Document – Text – Image – Video – Audio).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the methods of Cheng and Chaudhuri with Nelson's method of unstructured data because Nelson's method enables software product which provides for true multimedia document retrieval by receiving multimedia queries containing various types of data, such as text keywords, images, and audio or other data types, and processing such queries against a multimedia index that commonly indexes multimedia documents, including any of their multimedia components (Abstract, lines 1-7).

18. Regarding Claim 9, the limitations of these claims have been noted in the rejection above. In addition, Nelson teaches generating a signature for each of the data of the unstructured data (Abstract, lines 17-19).

### **CONCLUSION**

19. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

A. Sedlar (U.S. Pat. No. 6,427,123 B1) discloses hierarchical indexing for accessing hierarchically organized information in a relational system;



B. Chaudhuri et al. (U.S. Pat. No. 6,223,171 B1) discloses a what-if index analysis utility for database systems; and

C. Roy (U.S. Pat. No. 5,644,763) discloses a database system with improved methods for b-tree maintenance.

#### **NAME OF CONTACT**

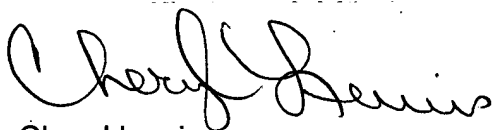
20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheryl Lewis whose telephone number is (703) 305-8750. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

(703) 746-5651 (Use this FAX #, only after approval by Examiner, for "INFORMAL" or "DRAFT" communication. Examiners may request that a formal paper/amendment be faxed directly to them on occasions.).

Art Unit: 2177

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



Cheryl Lewis  
Patent Examiner  
December 11, 2003



JOHN BREENE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100